

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Jun Koyama et al. Art Unit : 2629
Patent No. : 7,224,339 Examiner : Kent Chang
Issue Date : May 29, 2007
Serial No. : 09/923,433
Filed : August 8, 2001
Title : LIQUID CRYSTAL DISPLAY DEVICE, METHOD OF DRIVING THE SAME,
AND METHOD OF DRIVING A PORTABLE INFORMATION DEVICE
HAVING THE LIQUID CRYSTAL DISPLAY DEVICE

Attn.: Certificate of Corrections Branch
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF REQUEST FOR CERTIFICATE OF CORRECTION

Applicants hereby request that a certificate of correction be issued for the above patent in accordance with the attached request.

The following references were considered by the Examiner on January 3, 2004 as evidenced by the attached initialed form PTO-1449.

2002/0018029 A1	2/14/2002	Koyama
2002/0021295 A1	2/21/2002	Koyama et al.
2002/0024054 A1	2/28/2002	Koyama et al.
2002/0024485 A1	2/28/2002	Koyama
2002/0036604 A1	3/28/2002	Yamazaki et al.

U.S. Patent No. 5,959,598, issued 9/28/1999 (McKnight) was cited by the Examiner in the office action mailed July 28, 2004 (copy attached).

Further, references EP 139 327 and JP 410253941 should be corrected, as they were improperly printed on the patent. EP 139 327 should be listed as EP 1 139 327, as identified on the attached initial form PTO-1449 and JP 410253941 is incorrectly printed on the notice of references cited (PTO-892).

All errors sought to be corrected were made in printing by the Patent and Trademark Office, and no fee is believed to be due.

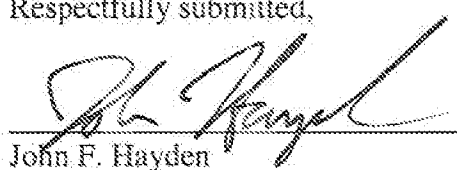
Applicant : Jun Koyama et al.
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Filed : August 8, 2001
Page : 2 of 2

Attorney's Docket No.: 12732-064001 / US5158/5166

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Respectfully submitted,

Date: 9/13/07



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Only**UNITED STATES PATENT AND TRADEMARK OFFICE
CERTIFICATE OF CORRECTION**Page 1 of 1

PATENT NO. : 7,224,339
APPLICATION NO : 09/923,433
DATED : MAY 29, 2007
INVENTOR(S) : SHUNPEI YAMAZAKI ET AL.

It is certified that an error appears in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

On page 2, "U.S. PATENT DOCUMENTS", please add the following list of references that were omitted from the patent:

5,959,598	9/28/1999	McKnight
2002/0018029 A1	2/14/2002	Koyama
2002/0021295 A1	2/21/2002	Koyama et al.
2002/0024054 A1	2/28/2002	Koyama et al.
2002/0024485 A1	2/28/2002	Koyama
2002/0036604 A1	3/28/2002	Yamazaki et al.

On page 2, "FOREIGN PATENT DOCUMENTS", please corrected the following references as indicated below:

EP	<u>1 139 327</u>	10/2001
JP	410253941 <u>10-253941</u> A1	9/1998

MAILING ADDRESS OF SENDER:

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Substitute Form PTO-1449 (Modified) JUN 03 2003 (Use several sheets if necessary) (1.98(b))	U.S. Department of Commerce Patent and Trademark Office		Attorney's Docket No. 12732-064001	Application No. 09/923,433
	Information Disclosure Statement by Applicant			
	Applicant Jun Koyama et al.		Filing Date August 8, 2001	Group Art Unit 2673

U.S. Patent Documents

Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	AA	US 2002/0018029 A1	02/14/2002	Koyama			07/26/2001
	AB	US 2002/0021295 A1	02/21/2002	Koyama et al.			08/17/2001
	AC	US 2002/0024054 A1	02/28/2002	Koyama et al.			08/17/2001
	AD	US 2002-0024485 A1	02/28/2002	Koyama			07/30/2001
	AE	US 2002/0036604 A1	03/28/2002	Yamazaki et al.			08/02/2001
	AF						
	AG						
	AH						
	AI						
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	AK						

Foreign Patent Documents or Published Foreign Patent Applications

Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation	
							Yes	No
	AL							
	AM							
	AN							
	AO							
	AP							

Other Documents (include Author, Title, Date, and Place of Publication)

Examiner Initial	Desig. ID	Document
	AQ	
	AR	
	AS	
	AT	

Examiner Signature <i>Anne M. [Signature]</i>	Date Considered 1/3/04
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 5,8,10,11,33,37,47,48,53,54,70-78,80-81 are rejected under 35 U.S.C. 103(a) as being unpatentable over **McKnight [5,959,598]**.

As to claims 5,8,33,37,47,48,53,54,70-72,74-76 80,81 **McKnight**, discloses a liquid crystal display device comprising pixels, wherein each of said pixels has $n \times m$ memory circuits (see, fig.8 (805) "storage capacitor"), n gate signal lines (fig.8 (779)"gate wire"), n Tufts having gate electrodes, source region and a drain region (fig.8 (781) "TFT"), wherein each of said gate electrodes is connected to a corresponding one of said gate signal lines (fig.8 (781) gate electrodes connected to gate lines (779)).

McKnight did not expressly detailed having a D/A converter for converting n bit digital signals stored in said $n \times m$ memory circuits into analog signals. However, **McKnight** in fig.11 clearly teaches an alternative way of arranging an LCD pixels in which a each pixels having a D/A converter (fig.11 (1014)) for converting n bit digital signals stored in $n \times m$ memory circuits (fig.11 (1005) into analog signals (col.20, lines 29-39). It would have been obvious to one skill in the art at the time of the invention was made to have been motivated to have incorporate **McKnight**'s D/A into LCD pixels with TFT and a memory system arrangement since this will allow to convert the digital display data into an analog signal data which will drives the pixels to the desired voltage.

Sheet (c)

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Substitute Form PTO-1449 (Modified) Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b))	U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 12732-064001	Application No. 09/923,433
	Applicant Jun Koyama et al.		
	Filing Date August 8, 2001	Group Art Unit 2629	

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							Yes	No
KC	AN	EP0 566 408	10/20/1993	EUROPE	—	—	In English	
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	AQ	JP06-011734	01/21/1994	JAPAN	—	—	Abstract	
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Examiner Signature 	Date Considered 3/26/07
EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.	

Sheet (E)

Notice of References Cited	Application/Control No. 09/923,433	Applicant(s)/Patent Under Reexamination KOYAMA ET AL.	
	Examiner Amare Mengistu	Art Unit 2673	Page 1 of 1

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NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

(51) Int. Cl. ⁶	識別記号	F I
G 0 2 F 1/133	5 5 0	G 0 2 F 1/133 5 5 0
	5 2 0	5 2 0
G 0 9 G 3/36		G 0 9 G 3/36

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(54) 【発明の名称】 マトリクス型画像表示装置

(57) 【要約】

【課題】短い表示信号入力時間の間でも各画素に高解像度の表示信号を入力するができ、高解像度の大型マトリクス型表示装置を提供すること。

【解決手段】各表示画素回路14は、DA変換器22を備え、DA変換器22の出力にはTN液晶静電容量23が接続され、入力にはラッチ21の出力が接続されている。ラッチ21のタイミング入力はゲート線11を介してY駆動回路15に接続され、ラッチ21のデータ入力はデータバス12を介してX駆動回路16に接続されている。TN液晶静電容量23の他端は共通電極24に接続されている。Y駆動回路15は、制御回路19から入力されるクロック17に従い、順次各行のゲート線11を選択して高電圧レベルに設定する。X駆動回路16にはデジタル表示信号がデジタル入力線18を経由して入力されており、一行分のデジタル表示信号が揃った時点で、各列毎にデータバス12に出力される。

